PATHOLOGY AND BACTERIOLOGY.

UNDER THE CHARGE OF
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The Action of Narcotics and Alkaloids on the Complement.—GOLDSCHMIDT and PRIBRAM (*Ztschr. f. exp. Path. u. Ther.*, 1909, vi, 211) have studied the action of various narcotics and alkaloids on hemolytic sera and have obtained the following results: The narcotics of the aliphatic and aromatic groups as well as powerful brain and nerve poisons in general (especially the alkaloids) exert a group of actions which stand in causal relationship to one another. (1) The action on lecithin suspensions as well as on other colloidal suspensions is either solution or precipitation; subsequent solution of the precipitate may take place. (2) Fresh hemolytic sera lose their power to destroy red blood cells when subjected to the action of the above-mentioned poisons. This action is due to a change in the physical condition of the medium and can be reversed by again adding sufficient fresh serum. The phenomenon is probably similar to the inactivation by heating to 60° C., since both procedures are accompanied by lowering of the surface tension. (3) Red blood cells are laked by powerful brain and nerve poisons with few exceptions. (4) The action of erythrocytic and cerebral bacterial toxins (tetanus, diphtheria) is weakened or prevented by these poisons. (5) All of these actions are of physical nature and are due to the intense physical activity of the above-mentioned substances. (6) Only poisonous alkaloids produce this phenomenon, and they probably stand in close relationship to their chemical constitution.

The Origin of Nephritic Œdema.—JULIUS BENCE (*Zeit. f. klin. Med.*, 1909, lxvii, 69), in order to elucidate certain problems in connection with œdema in nephritis, studied the fluid content of the blood in normal and nephrectomized rabbits, and in rabbits in which a nephritis had been produced by injections of uranium nitrate. When rabbits whose kidneys are normal are deprived of water, there is a slow but constant loss in weight with a decrease in the fluid content of the blood. If such rabbits are given sufficient water by the stomach to keep the weight at a constant level, that is, from 100 to 150 grams of water a day, the fluid content of the blood is not perceptibly altered. Nephrectomized rabbits when deprived of water also show a gradual loss in weight, but present interesting changes in the fluid content of the blood. At first this rises slightly, then falls temporarily, but finally increases steadily until the animal dies. With the hydremia, which continues in spite of the fall in body weight, œdema may develop, since three of the eight nephrectomized animals showed ascites. The ingestion of 100 to 150 grams of water a day, sufficient to keep the body weight at practically a constant level, gives rise to a more pronounced hydremia and uniformly to œdema. Rabbits in which a nephritis has been produced by means of uranium nitrate, deprived of water, lose weight slowly during the first day; on the second day there is a sharp fall in weight synchronous with the diuresis produced by the nephritis. On the third day anuria makes its appearance and the body weight remains about the same. A drop in the fluid content of the blood accompanies the diuresis, but with the onset of anuria hydremia sets in and increases during the production of œdema and until death. In three of the eight animals there was ascites. Injection of water in the same amounts as was used in the other experiments gave rise to more hydremia, which started before the development of anuria, and was accompanied constantly by œdema. Uranium nitrate injected into nephrectomized animals did not influence the course of events, which seemed to show that the effects obtained by the use of chemicals are not due to injury to the vessel walls, but simply to the disturbance which it sets up in the kidney. The experiments show that when the kidneys are removed or made functionless through disease, there is an interchange of water from the tissues into the vessels giving rise to hydremia. A second interchange of fluid takes place between the blood and tissue spaces or serous cavities. These phenomena occur even though there is no addition of water to the body, though if water is obtained from outside the body, the effects, that is, the œdema, are much more marked.

The Relation of Typhoid Bacilli to the Gall-bladder.—Another e idence of the importance of the role played by bacillemia in typhoid fever is afforded by the experimental work of CHIAROLANZA (*Ztschr. f. Hygiene u. Infektionskr.*, 1908, lxii, 1) on the relation of typhoid bacilli to the gall-bladder and gall-ducts. He found that if bacilli are injected into rabbits subcutaneously, they do not reach the gall-bladder; but after intravenous injection they were found in 17 out of 23 cases (74 per cent.) The shortest time for them to reach the gall-bladder was two hours; the longest period of their excretion from it, fifty-eight days. To determine in what way they entered the gall-bladder, the cystic duct was ligated shortly before injecting the bacilli. In these cases also, bacilli were found in the bladder, showing that they had entered not with the bile, but through the capillaries of the mucosa and submucosa. Also, if the common duct was ligated, bacilli could be found in the intestine, showing that here also they might invade by way of the capillaries. On histological examination the infected gall-bladder showed degeneration of the epithelium in acute cases; proliferation of the epithelium with thickening and infiltration of the submucosa, in the more chronic forms. Necrosis of the liver was never found.

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